Lead Organizations: Funded Projects To-Date

Marine and Nearshore Lead Organization: Departments of Fish and Wildlife and Natural Resources

Effective Regulation and Stewardship Project Grants

1. King County: $41,770
WRIA 9: Marine Shoreline Monitoring and Compliance Pilot Project
This project will allow King County to survey 90 miles of marine shoreline in WRIA 9 to collect shoreline use data that will be cross-checked with baseline data. Any new, unpermitted, anthropogenic shoreline modifications will be addressed to ensure compliance with existing regulations.

2. Northwest Straits Foundation: $99,830
Targeted Outreach to Reduce Impacts from Shore Hardening in the Port Susan Marine Area
The goal of the project is to prevent increased ecosystem impacts resulting from hardening of the marine shoreline in the Port Susan Marine Stewardship Area (PSMSA). Activities funded by this grant focus on conducting targeted outreach to county planners and coastal landowners. Outreach activities, informed by an audience needs assessments, will include a professional development workshop for Island and Snohomish County planning staff, a workshop for coastal landowners in the PSMSA, development of educational materials, and professional consultations for coastal landowners on alternative shoreline erosion control. *Partners: Island and Snohomish County Marine Resource Committees and Island and Snohomish County Planning Departments*

3. Mason County: $245,000
Protecting Nearshore and Marine Habitat in Mason County by Improving Permit Processes, Enforcement of Existing Regulations, and Public Outreach
The Mason County Department of Community Development proposes will improve implementation and compliance with the County's Resource Ordinance (RO) regarding shoreline development practices. The County will implement a Resource Ordinance Working Group to develop recommendations and success targets, and provide tools to train County staff in GIS and permitting plan review and inspection. An outreach program, facilitated by increased staff capacity, will help educate shoreline property owners and help shoreline landowners to comply with existing regulations. *Partners: Mason County Conservation District*

4. Kitsap County: $250,000
Nearshore Permitting Effectiveness through TACT
Kitsap County, San Juan County and the Washington Department of Fish and Wildlife and will implement a trouble shooting, action planning, course correction and tracking and monitoring (TACT) approach to reviewing and renovating shoreline permitting systems. The goal is to increase the use and efficacy of ecological protection provisions in shoreline permitting programs. *Partners: San Juan County, Washington Department of Fish and Wildlife*

5. Coastal Watershed Institute: $309,157
Protecting the Strait of Juan de Fuca Nearshore through Shoreline Master Program Improvements
The work funded through this grant will provide new data and improved tools to support Clallam

County's Shoreline Master Program (SMP) amendments including appropriate building setbacks, buffer zones, and other nearshore protection regulations. New data such as high-precision bluff erosion rates will help to delineate hazardous areas and justify SMP measures. Through quantifying the economic values of ecosystem services and sharing the results with landowners, developers, and other stakeholders, the project will enhance awareness and understanding of the regulatory framework needed to accomplish shared goals for the nearshore ecosystem and reduce long-standing barriers to its protection. *Partners: Clallam County, Washington Department of Natural Resources, Washington Department of Ecology, Earth Economics, Washington Sea Grant, US Fish and Wildlife Service, Peninsula College, WWU, Washington Department of Fish and Wildlife, Friends of Dungeness Refuge, Surfrider Foundation, and Clallam County Marine Resources Committee*

6. Friends of San Juans: $150,000
Protecting Ecosystem Functions with Sea Level Rise and Cumulative Effects Management Tools
The goal of this project is to achieve long-term protection of nearshore ecosystems by creating new technical tools and adaptive management strategies to address cumulative impacts and sea level rise within existing regulatory frameworks, provide policy reform recommendations, and encourage improvements to conservation policies at the local and regional level. *Partners: Coastal Geologic Services, Salish Sea Biological and a technical team of local, state, tribal and university e*

7. Washington State Department of Natural Resources: $500,000
20% More Eelgrass by 2020: Restoration Site Selection and Testing, and Resolving Regulatory and Social Barriers
This project will locate sites within Puget Sound and the Strait of Juan de Fuca suitable for successful eelgrass restoration, with specific focus on identifying sites that would be conserved from future anthropogenic disturbances and resilient to climate change. This project will develop a habitat suitability ratings specific to Puget Sound; apply and link a nearshore hydrodynamic model and a water properties model to predict conditions required by eelgrass; interact with local, regional, and tribal shoreline planners and regulators and research scientists to determine where regulations are not effectively reducing stress to eelgrass; and provide recommendations on restoring and protecting resilient eelgrass meadows. *Partners: Coastal Ecosystem Research Group, Marine Sciences Laboratory, Pacific Northwest National Labs, EPA Newport Research Lab, EPA Newport Research Lab*

8. Futurewise: $218,000
Puget Sound Shoreline Master Program Improvement
This project will work with counties, cities, and state agencies to provide technical assistance and outreach on shoreline master program updates in 11 Puget Sound counties and 12 Puget Sound cities. The goals are to ensure no net loss of fish and wildlife habitats, protection of shoreline ecosystems and water quality, and to encourage effective and efficient permitting. Futurewise will also work with citizens to provide information on the value of shoreline master program updates and the importance of protecting Puget Sound. *Partners: People for Puget Sound*

9. Washington Environmental Council: $300,000
Ensuring Regulatory Effectiveness in Puget Sound's Most Special Places
The goal of this project is to provide education about aquatic reserves and develop Citizen Stewards for five of the seven Puget Sound aquatic reserves by training local citizens to be involved in their

stewardship. Citizen Stewardship Committees will prioritize work objectives based on the adopted management plans for each reserve and then will conduct technical protection policy work, citizen science and outreach/education activities. *Partners: Nisqually Reach Nature Center, Whidbey Watershed Stewards, ReSources for Sustainable Communities, Preserve Our Islands*

10. Washington Department of Fish and Wildlife
Marine Shoreline Design Guidance
A lack of good guidance on soft-shore armoring is a significant barrier to the use of soft-armoring techniques in Puget Sound. This project will compile a set of best practices and determine which techniques are appropriate in certain environments.

11. Washington Department of Ecology
Mapping Puget Sound Feeder Bluffs
The primary outputs of this project are sound-wide data on the location of feeder bluffs and guidance on the significance and use of this information. Secondary outputs include coordination and engagement with other organizations (including local governments, the Puget Sound Partnership, the science community, and tribes), supporting interest and projects by advisory group members, and increased capacity at Ecology to provide coordination and guidance these issues.

12. Puget Sound Partnership
Increasing Public Awareness of Puget Sound Issues
The Grant Program is contributing funding to two Targeted Awareness Grants (TAG) through Puget Sound Partnership that are intended to increase public awareness and understanding that Puget Sound is in trouble, as well as the significance and potential impacts of shoreline management. The Grant Program will provide partial funding to Friends of the San Juans through their TAG to develop SMP update related information and maps, and is fully funding a TAG to WSU Extension-Mason County to conduct outreach and education about the importance of shorelines and the SMP update.

Adaptive Management Grants

1. Skagit River System Cooperative
Quantifying the Impacts of Shoreline Armoring
Using a multidisciplinary approach, the Skagit River System Cooperative, will study the impacts of shoreline armoring on nearshore processes and species. This project will include partners ranging from the Swinomish Tribe to the University of Washington researchers. The information gathered by this project will serve to fill a critical knowledge gap identified by Puget Sound resource managers and researchers. *Partners: University of Washington, Swinomish Tribal Community, Tulalip Tribe, NOAA*

Habitat Restoration and Protection Grants
Habitat restoration and protection grants 1-7 below support projects that have been selected for funding through the Estuary and Salmon Restoration Program process. Grant funds are administered through the Recreation and Conservation Office for these seven projects.

1. The Nature Conservancy: $213,333

Lead Organizations: Funded Projects To-Date

Barnum Point Acquisition - Bluff Backed Beach
The Nature Conservancy, in partnership with Island County will purchase and permanently protect property that includes important feeder bluffs, tidelands and marine riparian habitat including natural shorelines. Building on more than a decade of conservation efforts by multiple partners in Port Susan Bay, acquisition of Barnum point will directly benefit more than 7,100 acres already in conservation ownership by protecting important on-site habitats, including mature marine riparian forest, and ecological processes (e.g. sediment supply and transport) critical to the long-term integrity of the larger ecosystem.

2. The Nature Conservancy: $213,333
Dabob Natural Area Acquisition *Bluff Backed Beach*
This project will permanently protect over 20 acres of coastal and marine riparian forest and 750ft of shoreline of the DNR Dabob Bay Natural Area. The acquisition is part of a larger effort to protect the high habitat and functional value of the area.

3. King County Department of Natural Resources: $213,333
Point Heyer Drift Cell Preservation Phase II – *Bluff Backed Beach*
The goal of the project is to preserve about 90% of the Pt. Heyer Drift Cell shoreline, one of the few highly functioning drift cells in Central Puget Sound. Funds will be used to protect sediment supply, transport, and depositional process, the riparian area, intertidal habitats, and salt marsh.

4. The Nature Conservancy: $162,450
Port Susan Bay Dike Setback – *River Delta*
Funds will be used to complete the implementation phase and initiate evaluation phase of this project for dike setback and restoration of 150 acres of estuarine habitat.

5. Mason County Conservation District and Skokomish Tribe: $162,450
Skokomish Estuary Restoration Phase III – *River Delta*
Work in this phase of this major project will reconnect 300 acres of wetland complex to the Skokomish Estuary, with the goal of restoring the total hydrologic connection between wetlands in the estuary site. The quality and amount of usable habitat to this single wetland complex will be vastly improved in the near term.

6. Skagit River System Cooperative: $162,450
Milltown Island/ South Fork Skagit River Restoration – *River Delta*
The project includes demolition of 1/2 mile of relic dikes on Milltown Island and continued evaluation of conditions at Deepwater and Wiley Slough project sites to inform adaptive management recommendations targeted toward future actions in the South Fork delta.

7. Washington Department of Natural Resources: $162,450
Woodard-Chapman Bay Fill Removal – *Open Coastal Inlet*
Grant funds will be used to support a larger effort to restore 500 acres of nearshore habitat within the Woodard Bay NRCA boundary, including removal of 28,000 cubic yards of fill from the base of the Chapman Bay Piers, and acquisition of important properties within the Chapman Bay watershed. This is a unique opportunity to restore and conserve one of the largest, intact complexes of nearshore

habitats permanently protected in southern Puget Sound.

8. Northwest Straits Foundation: $667,360
Puget Sound Derelict Net Removal and Pilot Response Program
Derelict nets are a significant threat to marine and nearshore habitat and species. The Northwest Straits foundation will coordinate the removal of the remaining, known, shallow water nets in Puget Sound. NWSF will also design and implement a response and removal program for new nets lost and reported.

Invasive Species and Oil Spills Projects

1. WDFW and University of Washington
Ballast Water Management Assessment
Current ballast water management requires vessels to perform an open sea exchange to minimize discharge of coastal invasive species. Inspections to determine compliance are done on only a sub-set of vessels. Existing samples (approximately 75-100) of treated ballast water have been collected over the past few years; however analyses have not been conducted since late 2009. Analysis of existing and new samples will indicate the rate of compliance, assist in targeting enforcement efforts, and lead to improved ballast water management strategies.

2. Portland State University
Assessment of Biofouling Threats to Puget Sound
This project will evaluate and report comprehensively on Biofouling associated aquatic invasive species invasions in Puget Sound. It will provide information on history and current status, and insights into priorities for a state biofouling management strategy that will interrupt and decrease the risk of this potent invasion pathway.

Cross-cutting Projects

1. Washington Department of Fish and Wildlife
Toxic Contaminant Monitoring in Mussels
Data from mussel tissue will be used to evaluate status and track trends of contaminants in Puget Sound on a watershed or land-use scale. This information is valuable to organizations that are responsible for managing regional stormwater and other aspects of water quality and control of toxic chemicals.

2. Washington Department of Natural Resources
Impacts of Outfalls on Eelgrass
DNR will implement a strategy to analyze the current locations of outfalls and eelgrass to identify areas of greatest potential impacts, summarize impacts to eelgrass from outfalls through literature review, and gather data through tissue samples of eelgrass contamination in Puget Sound. This information will contribute to the understanding of the impacts of outfalls on eelgrass and will support informed management.

Lead Organizations: Funded Projects To-Date

Watershed Protection and Restoration Lead Organization: Department of Ecology

Restoring Riparian Areas/Floodplains/Streams

King County: $300,000
Improving water quality and habitat in middle Green River sub-basin
The County will use the grant to address water quality problems and degraded salmon habitat by restoring riparian zones along three stream reaches, including portions of the Middle Green River and Newaukum and Soos creeks. This project includes planting native plants, controlling knotweed, conducting public outreach, and monitoring water quality. Public outreach will include landowner workshops on riparian restoration and recruiting landowners to participate in future restoration projects.

The Nature Conservancy: $500,000
Floodplains by design – habitat recovery through collective action
The Nature Conservancy will identify floodplain areas in Puget Sound that have the highest potential to advance multiple benefits such as habitat and flood protection. The Conservancy and its partners will use this analysis as a basis to integrate flood risk reduction and ecosystem restoration information. This framework will help ensure that floodplain management decisions support Puget Sound recovery and community goals such as public safety and recreation.
Partner organizations: Puget Sound Partnership, National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and U.S. Geological Survey

Nooksack Indian Tribe: $500,000
Engineered Nooksack River log jams
The Tribe will design and construct engineered log jams in two Nooksack River reaches at South Fork near Hutchinson Reach and North Fork at Wildcat Reach. The project will restore habitat conditions and help improve salmon abundance and productivity, particularly Puget Sound Chinook.

City of Seattle: $120,000
Knickerbocker Reach Floodplain Restoration Phase 1, Thornton Creek
This is a two-phase project to restore floodplain function and stream habitat in an urban stream in north Seattle. The project will result in optimizing floodplain storage, reducing stream velocities and improving instream and riparian habitat quality. This project is receiving funds from EPA that are designated specifically for urban restoration; it is hoped this will serve as an urban floodplain reconnection demonstration project. Current funding will complete Phase 1 of this project to complete the design and permits. Phase 2, construction of the project, is currently not funded.

Improving Resource Data/Modeling

Kitsap County: $369,176
Improve stream data to protect freshwater ecosystems
The County will expand its water typing assessment by conducting a field survey of stream reaches

and developing, testing and refining a computer model to better predict distribution of streams and fish habitats throughout the county. This includes developing an interactive, internet-based web site.
Partner organizations: Wild Fish Conservancy and University of Washington

Tulalip Tribes: $186,923
Predictive modeling, protecting coastal salmon streams
The tribe and its partners will identify priority coastal streams in Island County watersheds to protect and restore to ensure this information is incorporated in updates to regulations, ordinances, and plans. Previous study information will be used to develop a predictive model to identify coastal streams that have key characteristics making them suitable salmon rearing habitat. The model will be used in conjunction with watershed characterization data to prioritize protection and restoration efforts. The information will be incorporated into Island County's shoreline master program and critical areas ordinance updates as well as other planning processes.
Partner organizations: Skagit River System Cooperative, Wild Fish Conservancy, Northwest Indian Fisheries Commission, Island County, and Whidbey Watershed Stewards

Washington Department of Commerce: $360,000
Integrate land use permitting & plan data with watershed characterization
Commerce is evaluating how best to use, synthesize and display available data to monitor changes in land use. This will include developing recommendations on using these data and integrating it with the Puget Sound Watershed Characterization data to improve land use planning decisions. Commerce will also make recommendations on establishing a long-term data repository and maintenance system as a result of this work.

Washington Department of Ecology: $132,000
Channel migration zone assessments
This project will provide a verified methodology and technical guidance for planning-level channel migration zone mapping that can be used for floodplain management, habitat recovery, and other purposes. This will also include a technical guidance for more detailed CMZ assessments where needed. The conditions affecting channel migration will be identified and streams with the potential to migrate will be identified. This work will provide a basis on which local governments can develop plans, policies, and regulations for floodplain management that are consistent with the goals and strategies of the Puget Sound Action Agenda.

Washington Department of Fish and Wildlife: $91,609
Land cover change detection analysis, Phase 1
This project will conduct an analysis of vegetation changes in riparian management zones for all Puget Sound marine shorelines and shorelines of major rivers and streams using high-resolution imagery from 2006-2009. This is the first phase in developing a status and trend monitoring program to measure implementation success and effectiveness of land use policies and regulations. This will provide a method for tracking progress toward the Land Development and Land Cover 2020 targets. Phase 2 (2009-2011 aerial photo analysis) will also be funded by the Watershed Grant in 2013.

Washington Invasive Species Council: $225,000
Combating invasive species
The Council will use the grant to continue work already started to identify the extent and impact of

invasive species in Puget Sound watersheds. The council will build a database and species maps, and develop a survey tool to update the information annually. This work will bring together information from a variety of existing sources into one database, allowing the council to assess the current status of invasive species and identify information gaps.

Managing Stormwater

Town of Coupeville: $495,523
Innovative Penn Cove surface water runoff control project
Construct an innovative constructed wetland facility that will collect, clean and cool surface water runoff before the water is discharge into Penn Cove. Some of the cleaned water will also be used for irrigation during the summer months. The project will assess the effectiveness of this facility to reduce the harmful effects of human activities on water quality and habitat in Penn Cove, which has a robust commercial shellfish industry.
Partner organizations: University of Washington, Island County Marine Resources Committee, Island County Local Integrating Organization, and SvR Design

Clear Creek Solutions: $160,000
Develop Low Impact Development Module for Western Washington Hydrology Model
This project will result in improvements to the Western Washington Hydrology Model that include new LID features, updated precipitation data, and other improvements. This model is used by engineers and planners throughout western Washington in planning for stormwater from new development, in planning for stormwater retrofits, and many other uses.

Herrera Environmental: $120,000
Develop Operations & Maintenance Guidance & Training for Low Impact Development (LID) Facilities and Practices
This project will result in a guidance manual and training program for the operation and maintenance of LID facilities. Information will include required costs, equipment, staffing, and skills to perform O&M on specific LID BMPs that will be useful to local jurisdictions in planning efforts for meeting the new LID requirements in the draft Phase I and II NPDES Municipal Stormwater permits.

Hood Canal Coordinating Council: $250,000
Hood Canal regional stormwater retrofit plan
The Council will identify, prioritize, and plan for retrofits of stormwater infrastructure in locations most important to protect and restore to limit surface water runoff and related pollution, and boost rainwater infiltration in the Hood Canal watershed.
Member organizations: Jefferson, Kitsap and Mason counties and Port Gamble S'Klallam Skokomish tribes

City of Mukilteo: $75,000
Regional master plan for surface water runoff
The City will develop a regional watershed-based stormwater plan to address increased levels of development, land clearing and impervious surfaces. The plan will enhance the environmental benefits of area watersheds by identifying and prioritizing low impact development opportunities. The City will also use the grant to advance off-site stream and wetland mitigation efforts that will

help offset the environmental impacts of development on water quality, water supplies and habitat. *Partner organizations:* City of Everett and Mukilteo School District

Puget Sound Regional Council: $125,000
Develop Project List for Stormwater Retrofits
This award will fund phase 1 of a program to develop a prioritized stormwater retrofit project list for the four most urban counties in the Puget Sound area. The project will focus on prioritizing retrofit projects related to transportation systems in Snohomish, King, Pierce, and Kitsap counties. Phase 1 will produce a work program for this effort, a background report that explores the major issues related to transportation stormwater impacts, and a scope of work for the entire program.

Washington State University: $480,584
Putting science to work to address surface water runoff
This grant will support extensive testing of bioretention methods and permeable pavement at the Washington State University Research & Extension Center in Puyallup. These results will be used to develop scientifically-defensible performance and design guidelines for low impact development techniques that will be disseminated and applied on-the-ground with partners in four different watersheds across Puget Sound.
Partner organizations: Port of Tacoma, City of Bellingham, City of Puyallup, and Kitsap County

Whidbey Island Conservation District: $120,000
Ebey's Prairie stormwater remediation project
The Conservation District and its partners will use a watershed-based approach to reduce contaminants that enter the drainage system in Ebey's Prairie by tackling them at their sources and improving water treatment facilities. The project will launch a targeted outreach and education effort to raise awareness regarding the extent and causes of water quality degradation throughout the watershed. The grant will also be used to provide technical assistance to landowners, including using best management practices and restoring natural filtration functions within the drainage system. The project will produce a design to improve contaminant removal near the outlet of the drainage system. *Partner organizations:* Island County, Island County Marine Resources Committee, City of Coupeville, The Nature Conservancy and Trust Board of Ebey's Landing National Historical Reserve

Developing Local Watershed-based Land Use Planning Approaches

Kitsap County: $134,814
Watershed based land-use planning
Kitsap County will prepare land-use recommendations for the county's 2016 comprehensive plan update, based on an analysis through the Puget Sound Watershed Characterization project. The state departments of Ecology and Fish & Wildlife and Puget Sound Partnership used an EPA grant to develop this regional-scale tool which helps highlight the most important areas to protect and restore, and those most suitable for development throughout the Puget Sound region.

Hood Canal Coordinating Council: $300,000
Integrated watershed management plan using Puget Sound Watershed Characterization Project

Lead Organizations: Funded Projects To-Date

HCCC will complete an integrated watershed management plan using the Puget Sound Watershed Characterization to guide the development of an in-lieu-fee mitigation program in the Hood Canal region.

Washington Departments of Commerce, Ecology, and Fish and Wildlife: $1,226,620
Watershed characterization technical assistance team (WCTAT) support
The WCTAT is providing support to local governments, tribes and other entities in interpreting and implementing watershed frameworks such as the Puget Sound Watershed Characterization. This team is assisting Watershed Grant recipients with incorporating a watershed framework into planning and restoration projects, and will refine the Watershed Characterization based on inputs from projects the team assists with.

Protecting & Restoring Ecosystems Through Protecting Rural/Working Lands

King County: $200,000
Integrating market-based tools to protect and restore land
The County will establish an integrated transfer of development rights program to help protect agricultural and working forest lands while restoring ecologically important lands using mitigation tools such as wetland mitigation banks and in-lieu fees. *Partner organizations:* City of Kirkland and Forterra

King County Conservation District: $153,402
Snoqualmie Valley grown and active: 'When cows meet clams'
This project will establish an agricultural and forestry production, marketing, and tourism training program to help keep working farms and forests in the Snoqualmie Valley. The program will include providing training to expand the number of working farms and forests practicing sustainable approaches while raising awareness about the important role working lands have on quality of life. *Partner organizations:* Cascade Harvest Coalition, Northwest Natural Resource Group, and Calyx Sustainable Tourism

Kitsap County: $270,000
Sustaining ecological processes, working forests on lands at risk of development
The County will establish a community partnership to permanently protect working forest lands that provide key ecosystem benefits. This partnership will work to minimize the conversion of forest lands to residential development by applying a variety of land conservation tools. *Partner organizations:* Olympic Property Group, Port Gamble S'Klallam Tribe, Suquamish Tribe, WSU Extension, Great Peninsula Conservancy, and Forterra

The Nature Conservancy: $305,000
Farms, fish and floods initiative
The grant will be used to bring together interest groups in the Skagit Delta area to restore the estuary and protect agricultural lands. TNC and its partners will identify and prioritize potential restoration projects, and will also complete the Lower Skagit Delta Agricultural Land Base Analysis to evaluate long-term farmland protection needs to maintain a viable agricultural industry. The project focuses on addressing three core issues in the Skagit Delta: salmon recovery, farmland preservation,

and flood risk reduction. *Partner organizations:* Western Washington Agricultural Association, Skagitonians to Preserve Farmland, National Oceanic and Atmospheric Administration, and Washington Department of Fish & Wildlife

Nisqually Indian Tribe: $170,000
Upper Nisqually ecosystem services demonstration
The Tribe and its partners will establish a framework for marketing the environmental and economic benefits that intact lands provide such as habitat protection and reducing surface water runoff. This is intended to provide incentives to landowners to protect and restore forested lands. Potential buyers could be local salmon enhancement groups and utilities. The project focuses on the Mashel River and Ohop Creek in the upper reaches of the Nisqually watershed near Eatonville. *Partner organizations:* Nisqually River Foundation, Nisqually Land Trust, Northwest Natural Resource Group, Earth Economics, Washington State University, and Washington Department of Natural Resources

Skagit County: $200,068
Establish transfer of development rights program
This project will establish a "transfer of development rights" program in Skagit County — and focus on analyzing specific opportunities for the City of Burlington to stimulate commercial redevelopment. Under a transfer of development rights program, private and public developers purchase development rights from farmers or forest landowners so their land remains undeveloped. These development rights can then be used in urban areas better suited to accommodate additional growth. Transfer of development rights programs help save critical farms and forests, and support local economies. *Partner organizations:* City of Burlington and Forterra

Snohomish County: $367,000
Managing land use
Snohomish County will increase its urban densities by evaluating and developing infill strategies, including enhancement of transit corridors and implementing a county-wide transfer of development rights program. The County will incorporate watershed characterization into the Sustainable Lands Strategy Process to increase ecological and agricultural productivity and viability. The County will also use the grant to update the critical areas ordinance and conduct joint planning with the Tulalip Tribe.

Thurston Conservation District: $187,450
Addressing agricultural land conversion and barriers to direct markets
This project will link farmers looking for land with land owners seeking to protect their lands from development using various land planning tools including open space agriculture tax enrollment, conservation easements, and the transfer and purchase of development rights. The group will also provide farmers training for business planning and accessing capitol and local markets. *Partner organizations:* Capitol Land Trust, Cascade Harvest Coalition, Enterprise for Equity, South of the Sound Community Farmland Trust, and The Evergreen State College

Washington Department of Natural Resources: $200,000
Watershed services market demonstration projects
The Washington Department of Natural Resources will initiate demonstration projects in two watersheds to establish markets where forest landowners receive money to protect and maintain their lands. As the buyers in these markets, downstream beneficiaries purchase watershed services

such as surface water runoff control and salmon habitat enhancement. The project will establish partnerships, identify priority forest lands, develop measures for valuing specific watershed services, identify potential buyers and sellers, and develop an infrastructure for market transactions. *Partner organizations:* U.S. Forest Service, Washington Department of Health, Nisqually Tribe, Snohomish County, Nisqually Land Trust, Northwest Natural Resources Group and Willamette Partnership

Whatcom County: $358,471
Enhancing agriculture and water quality in Nooksack River basin
Whatcom County and its partners will establish a system that will provide incentives to landowners to restore agricultural lands in northern Whatcom County by marketing the services that intact streams and riparian areas provide such as protecting habitat and improving water quality. The project will identify high priority areas to protect and restore, and explore options for protecting these properties through the transfer of development rights and establishing a mitigation program, such as in-lieu-fee. These programs will be tested in a pilot watershed. *Partner organizations:* Whatcom Farm Friends, Whatcom Conservation District, and Washington Department of Fish & Wildlife

Lead Organizations: Funded Projects To-Date

EPA Toxics and Nutrients Lead Organization: Department of Ecology

Investments to reduce toxics and nutrients from entering and harming the Puget Sound ecosystem fall into five categories:

1. Scientific investigation of toxics and nutrients

Ambient Monitoring: Ecology established a competitive grant program for ambient water quality monitoring of key toxic or nutrient issues in the marine waters of Puget Sound or fresh waters in the Puget Sound watershed. This funding is designed for ambient monitoring projects that have a demonstrated immediate need and is not designed to provide funding for long-term ambient monitoring programs. Ecology will fund two projects:

- Sound Toxins Partnership – Harmful Algal Blooms Monitoring *Amount $125,000*
- High-Resolution Marine Water Quality Monitoring at the University of Washington *Amount $87,000*

Nutrient Scientific Investigations: We intend to address unmet scientific needs from the ongoing dissolved oxygen modeling in Puget Sound (Hood Canal, South Puget Sound, Budd Inlet,). In one project, USGS will evaluate the state of science for shellfish processes, sediment interactions, and watershed attenuation of nitrogen in the Puget Sound ecosystem. In the second project, Ecology will combine already summarized information into a web site targeting the general public and local governments. The purpose is to highlight elements of various Department of Ecology publications that have quantified nitrogen from various sources and pathways to Puget Sound. *Amount $430,000*

Roofing Project: The Puget Sound Toxics Loading Assessment identified roofing materials as one of the largest potential sources of cadmium, copper, and zinc in the Puget Sound Basin. This study will evaluate leaching of metals and phthalates from various roofing materials in common use in the Puget Sound region. Testing will be conducted in a laboratory setting. *Amount: $400,000*

Assessing Contaminants in Crabs and Prawns: Current toxics monitoring programs do not adequately address Dungeness crabs and spot prawns. These species are important because of their abundance, their role in the food web, and because people eat them. Ecology signed an Inter-Agency Agreement (IAA) with the Washington Department of Fish and Wildlife (WDFW) to analyze these species for chemical contamination. The Department of Health (DOH) will analyze the results for seafood safety. *Amount: $190,000*

"Box Model" Analysis of PAHs in Puget Sound: Ecology will update the computerized prediction tool called the "Box Model" with new information and will analyze polycyclic aromatic hydrocarbons (PAHs) and reanalyze polychlorinated biphenyls (PCBs). The model will be used to help develop an overall source reduction strategy to protect aquatic life in Puget Sound and meet Puget Sound Partnership targets for toxics. *Amount: $100,000*

Assessing Stormwater Data: Cities and counties currently collect water quality data on discharges of polluted runoff (stormwater). These discharges that are the largest pathway for toxic chemicals

entering Puget Sound. Ecology will compile and analyze the monitoring data from the eight "Phase 1" stormwater jurisdictions to provide an integrated analysis of stormwater. This information will be useful in managing stormwater inputs to Puget Sound. *Amount: $60,000*

Ocean Acidification: Washington Sea Grant is providing administrative support for the Ocean Acidification Blue Ribbon Panel. Puget Sound is particularly vulnerable to ocean acidification. Washington's coastal waters experience seasonal upwelling where waters that are naturally low in oxygen and rich in carbon dioxide rise to the surface. These upwelled waters are naturally more acidic. Coastal waters also receive excess nitrogen from human activities that can stimulate algae blooms. As these blooms die and sink, bacteria decompose them, depleting oxygen from the surrounding water. *Amount: $20,000*

Emerging Contaminants: There are a wide range of chemicals in use in the Puget Sound basin which information is lacking on occurrence, exposure and biological impacts. Many of these chemical have characteristics that make them potentially persistent, bioaccumulative and/or endocrine disrupting. Pharmaceutical and personal care products are a good example of a broad class of compounds that are in widespread use but we have little information the linkage between exposure and biological impacts. A competitive grant would be issued to solicit proposals to help address emerging contaminants. *Amount: $500,000*

Ferry-Based Monitoring: To improve data on Puget Sound water quality, Ecology will expand the ferry monitoring network beyond the Victoria Clipper to include public ferries run by the Department of Transportation. Installation of automated instruments on select ferries will allow Ecology to record measurements continuously as ferries make their multiple daily runs. Ferries occupy strategic cross-sections in Puget Sound – often at the very constriction points between basins that would let us most easily measure water exchange and circulation between those basins. These measurements are key to understanding overall water quality and for improving the performance of numerical models in Puget Sound. *Amount: $260,000*

2. Prevent substances from being used in the first place

Prevent PAH Pollution: Polycyclic aromatic hydrocarbons (PAHs) are a group of more than 100 different chemicals and generally occur as complex mixtures. Studies have linked PAHs to cancer, reproductive problems and weakened immune systems. Ecology funded two projects through a competitive grant.

- The Puget Sound Clean Air Agency will expand the wood stove replacement program through an NEP grant. *Amount: $334,000*
- The Department of Natural Resources will remove creosote pilings to reduce PAH inputs and improve habitat in Hood Canal. *Amount: $500,000*

Safer Alternatives Assessment: With the assistance of two consultants, Ecology is leading a collaborative process with stakeholders to define elements of and finalize a method for conducting safer alternative assessments, using existing models as a starting point for discussion. Based on the results of the Puget Sound Toxics Assessment, Ecology will identify chemicals or products that are good candidates for scientifically defensible assessment and work with partners (sub-awardees) to

conduct alternatives assessments. *Amount: $329,000*

Landscaper Accreditation Program: Ecology will fund a Landscaper Accreditation Program through a competitive process to reduce nutrients, toxics, and pathogens from reaching Puget Sound and improve habitat. Currently, there are not enough land care professionals in our region with practical knowledge about green infrastructure, restoration horticulture, and other sustainable practices. This program would comprehensively address all aspects of sustainable, ecological land care, provide practical knowledge for people in the field, recognize individuals for their knowledge, and help create a "green sector" of professionals focused on sustainable land care. *Amount: $300,000*

PBDE Product Ban Enforcement: Numerous persistent, bioaccumulative toxics (PBTs) and other toxics have been recently banned for certain uses in Washington: While it is illegal to sell the specified products containing these toxics, there is no active enforcement to check if the bans are working. This project would include purchasing items likely to contain PBDEs, sampling the products, and communicating with retailers and manufacturers if PBDEs are found. *Amount: $255,000*

Creosote Pilings at Chambers Creek: Creosote pilings are a leading cause of Polycyclic Aromatic Hydrocarbon (PAH) pollution in Puget Sound; as the pilings remain submerged, they release toxics both into the sediment and directly into water as the creosote degrades over time. With an Ecology grant, Pierce County will remove about 120 derelict creosote pilings along the shoreline near Chambers Creek. This project is part of the Pierce County Master Site Plan. *Amount: $160,000*

Pesticide Use Survey: When pesticides reach waterbodies they cause problems, and the Puget Sound Toxics Assessment found that urban pesticide use was the leading source of copper. The Washington State Department of Agriculture (WSDA) will conduct a survey of typical urban pesticide use. Assessment WSDA will mail surveys to 6,000-8,000 homeowners and complete in-person surveys of professional commercial and public applicators. Results will drive future education and outreach efforts. *Amount: $136,000*

Green Chemistry: Through a competitive grant process, these funds will establish a green chemistry center to collaborate on efforts to reduce or eliminate the use and generation of hazardous substances. The center will need to develop a business plan and revenue model for sustained funding needs. *Amount: $550,000*

3. Limit or manage the amount of toxics and nutrients released into the environment.

Control Nutrient Sources: Ecology held a competitive process to fund one or more projects to reduce nutrients reaching Budd Inlet. The projects implement programs to address low dissolved oxygen concentrations and other nutrient-related impacts. Ecology will fund one project: Nutrient Bioextraction: Shellfish At Work

Amount: $65,000

Stormwater Center: Stormwater, or polluted runoff, is the leading cause of water pollution in urban

areas across the nation. As rain and snow melt runs off rooftops, paved streets, highways, and parking lots, it picks up pollution such as oil, fertilizers, pesticides, soil, trash, and animal waste. Then the runoff carries that pollution into storm drains and downstream waters. Water in storm drains is usually not treated and flows into our lakes, rivers and Puget Sound. For this project, the Washington Stormwater Center will assemble information from a variety of local, regional, and state-wide sources into a web-based information system. *Amount: $27,000*

Develop a Fish Consumption Rate: Under our state's Clean Water Act authorities, Washington is revising its fish consumption rates to better protect people who eat its fish, and also to protect our environment and restore Puget Sound. The state's fish consumption rates are important because they drive regulatory standards about how clean the state requires our waters and sediments to be. The current fish consumption rates, developed in the 1980s and 1990s, are not accurate. New rates are necessary to protect high consumers of fish. The fish consumption rate is part of the equation that is used to calculate chemical criteria for toxics, and is an important driver in establishing water quality permit conditions and limits, and regulating the discharge of toxics into the aquatic environment. EPA has changed its default fish consumption rate. Ecology and the Northwest Indian Fisheries Commission (NWIFC) entered into an interagency agreement to determine a state fish consumption rate acceptable to NWIFC member tribes. *Amount: $100,000*

Local Source Control: The Local Source Control (LSC) partnership focuses directly on assisting small businesses to prevent polluted runoff from entering Puget Sound. The LSC partnership works with local jurisdictions to preserve waters in Washington state through source control. By addressing possible causes of pollution at the source of use, technical assistance to small businesses is making a difference. This approach is expected to save businesses money while protecting our state's water quality. The NEP funds are being spent through the existing LSC program and are funding four new municipal programs in Puyallup, Port Angeles, Everett and Bothell. *Amount: $1,399,000*

Onsite Septic Systems Nitrogen Removal: The goal of the study is to evaluate and verify new technologies to reduce nitrogen in domestic wastewater. Nitrogen is a pollution problem because it fuels the growth of plants and algae in downstream waters and it can pollute underground supplies of water Ecology entered into an interagency agreements with the Department of Health and the University of Washington to provide technical expertise to field test three innovative public domain technologies. If the field-testing in the Puget Sound basin shows the technologies are effective and reliable, DOH will take the appropriate steps to develop standards for these nitrogen-removal technologies for use in Washington. *Amount: $650,000*

Agriculture BMP Fund: The Agricultural Best Management Practices Fund to Control Nutrient and Pathogen Pollution (Agriculture BMP Fund) is a fund to pay for the installation of agricultural BMPs to address nutrient and pathogen pollution. The fund will pay for eligible agricultural BMPs including fencing to protect waters from livestock, off-stream watering, and livestock feeding. Interested land owners must work through a conservation district, local government, tribe, or other governmental entity. The Agricultural BMP Fund is specifically designed so smaller landowners are eligible. Ecology's 319 Funding Guidelines are the basis for the NEP Agriculture BMP Guidance; the only provisions added were specific to the NEP grant requirements. *Amount: $750,000 (plus additional money from the pathogen NEP grant to total $1,500,000)*

Lead Organizations: Funded Projects To-Date

Whatcom Pollution Control Action Team: This project funds two Department of Ecology inspectors for the Whatcom Pollution Control Action Team (PCAT). The PCAT is an important facet of the Washington Shellfish Initiative and is designed to identify and address pollution from a variety of point and nonpoint sources, including on-site sewage systems, farm animals, pets, and stormwater runoff. Due to persistent and growing concerns over vulnerable shellfish resources in Portage Bay and Drayton Harbor, Whatcom County was identified as an initial focus area for a PCAT. The team includes and is dependent on several other agency and tribal partners at both the operations and field level. *Amount: $850,000*

Vehicle Leaks: Seattle Public Utilities and Ecology will coordinate hands-on workshops addressing vehicle leaks in and around Seattle. There will be about 100 workshops where participants will learn how to detect oil and other fluid leaks, identify the sources of the leaks, repair common minor leaks, clean up spills, and properly dispose of auto fluids. Seattle Public Utilities and Ecology will conduct post-workshop surveys to assess behavior change. *Amount: $200,000*

PAH CAP Implementation: Polycyclic aromatic hydrocarbons (PAHs) are a group of more than 100 different chemicals and generally occur as complex mixtures. Studies have linked PAHs to cancer, reproductive problems and weakened immune systems. Ecology funded two projects in Rounds 1 and 2 through a competitive process to prevent PAHs from entering the environment. Round 3 will address sourced identified in the up-coming chemical action plan for PAHs. Ecology will distribute funds either directing or competitively based on the nature of the work being done. *Amount: $200,000*

Nutrients in a Watershed: Ecology will competitively select and fund one or two projects in a geographic area to address nutrients. The focus will be on residential areas. The projects would implement programs to address low dissolved oxygen concentrations and other nutrient-related impacts. *Amount: $750,000*

Storm Drain Cleaning: Ecology will fund one entity to remove legacy pollutant loads from stormwater systems discharging to the Lower Duwamish River, Harbor Island, Elliot Bay, or Commencement Bay. Funds will be distributed through a competitive process. Funds will be directed to an entity that has established programs to prevent recontamination. *Amount: $550,000*

4. Clean up substances that have polluted air, land, or water.

Ecology has not directed any current NEP funds to clean-up projects. Future funding may be used for this category.

5. Measure program performance and use adaptive management to continuously improve programs.

Agriculture Best Management Practice Effectiveness Monitoring: Ecology, local partners, and stakeholders will work to improve water quality at a sub-watershed scale by 1) prioritizing agricultural areas for Best Management Practices (BMPs) implementation, 2) providing baseline data

for identifying pollution sources and measuring water quality improvements, and 3) determining both programmatic effectiveness and water quality improvements. Effectiveness of BMPs will be measured from both a water quality standards and a watershed health prospective. *Amount: $150,000*

Lead Organizations: Funded Projects To-Date

Pathogens Lead Organization: Department of Health

Most Pathogen Grant investments help counties and other partners track down and correct pathogen sources such as onsite sewage systems, livestock and vessel sewage.

Support for Local Onsite Sewage Systems Management Programs: $1,785,181

Clallam	Locate and inspect OSS in mobile home and RV parks in the county's marine recovery area and conduct outreach to homeowners on how to care for their OSS. Create a Septic 101 video to inform the public about proper OSS management for use throughout Puget Sound.
Island	Upgrade an outdated OSS database to increase their ability to inventory OSS, track inspections, failing systems and repairs.
Jefferson	Send OSS inspection notification reminders to 800 property owners, develop a system to tag at-risk systems, update the OSS management plan and improve tracking of OSS inspections and repairs.
King	Create an OSS loan program to fix failing systems in Quartermaster Harbor on Vashon Island.
Kitsap	Track down failing OSS and provide incentives to reduce pollution from OSS around Long Lake that drains into Yukon Harbor.
Mason	Engage 24,000 OSS owners through targeted educational mailings and improve their database inventory of OSS.
Pierce	Conduct outreach and sanitary surveys on at least 100 shoreline properties and bring 1,100 OSS into a three-year inspection cycle.
San Juan	Send inspection notifications, map and inventory OSS, and provide workshops for OSS owners in seven sensitive areas.
Skagit	Septics 101 classes educate residents about proper OSS operation and maintenance. Attendees receive a rebate voucher for a riser and lid as a visual reminder encouraging better OSS management.
Snohomish	Inventory and inspect OSS in South Skagit Bay, Possession Sound and Port Susan and develop and implement program rules, regulations, policies and procedures for OSS reports.
Whatcom	Evaluate 840 unknown OSS in Drayton Harbor to identify and correct failing systems.

Pollution Identification and Correction (PIC) Programs: $4,420,290

Hood Canal Coordinating Council	Kitsap, Mason, Jefferson Counties and the Port Gamble/Klallam and Skokomish Tribes will develop a multi-agency PIC plan for Hood Canal.
Island	Carry out PIC investigations and corrective actions in Holmes Harbor, SW Whidbey and Triangle Cove.
King	Identify and correct OSS and livestock problems that impact water quality and shellfish beds in Quartermaster Harbor on Vashon Island.
Kitsap	Implement a PIC program in Yukon Harbor focused on OSS.
Mason	Mason County and the Squaxin Tribe will conduct monitoring and PIC investigations to protect shellfish beds and water quality in Chapman Cove (Oakland Bay), North Bay and

Lead Organizations: Funded Projects To-Date

	McLane Cove.
Pierce	Develop a multi-agency strategic plan for PIC and implement the plan in various areas of the Key Peninsula, focused primarily on OSS.
San Juan	Work with monitoring volunteers and other partners to carry out PIC work focused on various pollutants found in stormwater in Westcott/Garrison Bays, False Bay, East Sound, Fishermen's Bay and Mudd Bay drainages
Skagit	Intensive effort to inspect properties and provide technical assistance, incentives to landowners to reduce pathogen sources in the Samish and Padilla Bay watersheds.
Thurston	Track down and fix failing onsite sewage systems in Eld Inlet and the Nisqually watersheds, and pursue an efficient and sustainable funding model that will help Puget Sound communities pay for long term pathogen management in sensitive areas.
Whatcom	Whatcom has been chosen as the first area for implementation of the Shellfish Initiative to restore shellfish beds. Whatcom County Public Works will conduct and coordinate monitoring to identify pathogen sources in several drainages and manage a community engagement strategy to reduce pathogen sources in Drayton Harbor and Birch Bay. Whatcom County Public Health will assist PIC partners in tracking down onsite sewage system problems in the lower Nooksack. WDOH will hire a PIC Coordinator to assist multiple partners in carrying out a PIC program in the lower Nooksack watershed.

Additional Awards

1. Monitor and notify the public about bacterial pollution at recreational Puget Sound beaches. ($159,120)
2. Fund an Ecology inspector for three years to work with local partners to correct pathogen pollution in the Samish watershed and in other watersheds with active PIC programs. ($341,000)
3. Develop a guidance document to guide state and federal funding decisions and help local communities establish PIC programs. ($50,000)
4. Assess options and develop strategic proposals to establish a unified self-sustaining, low interest local loan program to help OSS owners repair failing OSS and a dedicated funding source to help the 12 Puget Sound counties implement their OSS operation and maintenance programs. ($150,000)
5. Install gutters, fencing, feeding and watering facilities on farms to keep livestock manure out of streams. ($1.5 million)
6. Assess the feasibility of establishing a federally designated No Discharge Zone to prohibit boats from dumping sewage in Puget Sound and increase pump out capacity and use in the Sound. ($360,000)
7. Improve our ability to track pathogens and notify the public about shellfish closures and biotoxin threats by updating our data management and reporting system. ($550,000)
8. Diarrhetic Shellfish Poisoning is a biotoxin recently detected in Puget Sound shellfish. NEP funds allowed DOH to quickly ramp up a monitoring program and notification program for DSP. ($136,000)